

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:)	
)	
Ron Naftali)	
)	Examiner: Michael Liu
Application No: 10/796,938)	
)	Art Unit: 2851
Filed: March 9, 2004)	
)	Confirmation No: 4473
For: System and Method for Printing a Pattern)	
)	
)	

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF
IN SUPPORT OF APPELLANT'S APPEAL
TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

This Brief is submitted in support of an appeal from a final decision by the Examiner, mailed on November 18, 2008 in the above-referenced case.

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I. REAL PARTY IN INTEREST

The real party in interest is Applied Materials Israel, Ltd., a wholly owned subsidiary of Applied Materials Inc., a corporation of Delaware. Applied Materials Israel, Ltd. has a place of business at 9 Oppenheimer Street, M/S 5800, Rehovot, Israel, 76705.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS

Claims 1-8 are currently pending, all of which have been rejected by the Examiner under the Final Rejection mailed on November 18, 2008.

In particular, claims 1-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent 4,904,569 to Fukuda et al. (hereinafter "Fukuda").

IV. STATUS OF AMENDMENTS

There are no presently pending amendments.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

1. A method for recording a pattern, comprising:

determining an illumination scheme in response to the pattern [Fig.

3, 122, Specification at 0020]; and

directing, in response to the determination, at least one beam of radiation having a first cross-section towards a saturable absorber so as to allow a portion of said beam to propagate towards a radiation sensitive layer; wherein the portion has a second cross-section that is smaller than the first cross-section [Fig. 3, 124, Specification at 0020].

5. A system for recording a pattern, comprising:

a controller [Fig. 2, 42, Specification at 0016], for determining an illumination scheme in response to the pattern; and

optics [Fig. 2, 48, Specification at 0016], coupled to the controller [Fig. 2, 42 Specification at 0016], for directing, in response to the determination, at least one beam of radiation [Fig. 1, 30, Specification at 0015] having a first cross-section towards a saturable absorber [Fig. 1, 16, Specification at 0015] so as to allow a portion of said beam [Fig. 1, 30, Specification at 0015] to propagate towards a radiation sensitive layer [Figs. 1&2, 14, Specification at 0015]; wherein the portion has a second cross-section that is smaller than the first cross-section.

As is apparent from these independent claims, the present invention concerns methods and systems that are configured to utilize saturable absorbers for recording a pattern on wafers and masks. Specification at 002.

The use of a saturable absorber provides an improvement over the resolution of lithography systems used to record pattern on a wafer or mask available at the time of the invention. Specification at 007.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on appeal are:

1. Whether claims 1-8 are patentable over Fukuda under 35 U.S.C. §103(a).

VII. ARGUMENT

1. THE PRESENT CLAIMS ARE PATENTABLE OVER *FUKUDA*:

The present claims recite, among other elements, directing at least one beam of radiation having a first cross-section towards a saturable absorber so as to allow a portion of said beam to propagate towards a radiation sensitive layer, wherein the portion has a second cross-section that is smaller than the first cross-section. Fukuda fails to teach or suggest at least this element of the present claims.

In the Final Office Action dated November 18, 2008 (hereinafter “Final Office Action”), it appears that the saturable absorber of the present claims is being equated with the reversible transmission film of Fukuda. Final Office Action, page 3. Fukuda is directed to a pattern forming method that generates a “fine pattern accurately on a substrate surface having a large level difference.” *Fukuda*, col. 2, lines 46-50. Fukuda discloses a reversible transmission film that “functions as a contrast enhancement layer.” *Id.*, col 16,

lines 65-66. Thus, the reversible transmission layer of Fukuda is limited to enhancing the contrast of a pattern printed on a photoresist layer and does not affect the cross section of a beam. In contrast, the saturable absorber of the present claims acts to reduce the cross-section of a beam propagating toward a radiation sensitive layer.

Thus, the results produced by the use of the reversible transmission film of Fukuda and the saturable absorber of the present claims are quite distinct and are clearly not analogous to one another. Furthermore, Fukuda, taken as a whole, fails to mention or suggest a saturable absorber, the use of which, has the net effect of reducing the size of a beam that passes through to a radiation sensitive layer.

For at least the reasons provided above, Fukuda fails to teach or suggest each and every element of the present claims. Accordingly, the Applicant respectfully requests removal of the 35 U.S.C. §103(a) rejection of the present claims.

VIII. CONCLUSION

For the foregoing reasons, Appellant respectfully asserts that Claims 1-8 overcome the cited references and are therefore patentable. For the reasons presented herein, the removal of the present rejections and allowance of the present claims is respectfully requested.

Charge Our Deposit Account

If there are any further charges not accounted for herein, please charge them to our Deposit Account No. 19-3140.

Respectfully submitted,

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Dated: April 17, 2009

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APPENDIX A: CLAIMS

The claims on appeal read as follows:

1. A method for recording a pattern, comprising:
determining an illumination scheme in response to the pattern; and
directing, in response to the determination, at least one beam of radiation having a first cross-section towards a saturable absorber so as to allow a portion of said beam to propagate towards a radiation sensitive layer; wherein the portion has a second cross-section that is smaller than the first cross-section.
2. The method of claim 1 wherein directing comprises focusing at least one beam of radiation onto an intermediate layer.
3. The method of claim 1 wherein the second cross-section is about half of the first cross-section.
4. The method of claim 1 further comprising altering an intensity of the beam of radiation to achieve a certain second cross-section.
5. A system for recording a pattern, comprising:
a controller, for determining an illumination scheme in response to the pattern; and
optics, coupled to the controller, for directing, in response to the determination, at least one beam of radiation having a first cross-section towards a saturable absorber so as to allow a portion of said beam to propagate towards a radiation sensitive layer; wherein the portion has a second cross-section that is smaller than the first cross-section.
6. The system of claim 5 wherein the optics are adapted to focus at least one beam of radiation onto an intermediate layer.
7. The system of claim 5 wherein the second cross-section is about half of the first cross-section.

8. The system of claim 5 wherein the controller is adapted to control an intensity of the beam of radiation to achieve a certain second cross-section.

APPENDIX B: EVIDENCE

None.

APPENDIX C: RELATED PROCEEDINGS

None.